THE "UNRECORDED" HURRICANE OF OCTOBER 1945

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ABSTRACT

Some details and comments on an "unrecorded" small-sized hurricane which affected the Cayman Islands, central Cuba, and part of the Bahama Islands in October 1945 are presented in this paper.

1. INTRODUCTION

It has been generally accepted that ten tropical storms developed in the Atlantic area in 1945, and that only four reached hurricane intensity according to Cry, Haggard, and White [1]. The first significant disturbance of that season began to develop over the Gulf of Honduras on June 20, while the last one was a hurricane which moved on a westward course parallel to the northern coast of Honduras from October 2 to 5. The purpose of this paper is to show that an additional storm developed later that season and attained hurricane intensity. So far, this case has been entered only in the special catalog of Cuban hurricanes, which was prepared by Rodriguez-Ramirez [2] some years ago. Based on data available, it has been established that this disturbance was experienced in the Cayman Islands, central Cuba, and part of the Bahamas from October 11 to 13, 1945. A version of the whole track is shown in figure 1.

Although the diameter of the storm's high winds was indeed very small, the closed circulation was large enough to be depicted in synoptic scale on the surface maps which have been re-plotted and re-analyzed for October 10 through 13 (fig. 2). Substantial evidence of at least a tropical depression could be found north of Colombia and Panama on October 10 and the disturbance could be tracked on a reasonable continuity basis throughout the 4-day period. The tropical cyclone appeared to have fused with a frontal wave on the 14th, and to have followed across the Atlantic, with extratropical characteristics, until it was absorbed by a major low-pressure system near Europe on October 17. The latter sort of evolution is clearly shown on the maps of the Historical Weather Map series [3], not reproduced.

Little is known about the storm's passage over the Cayman Islands. The reference available came from some Cuban fishermen who were taken by surprise at Cayman Brac; they merely said that "rain and winds" were felt there. The diameter of the storm was so small that the meteorological station at Grand Cayman, about 70 mi. to the west, did not report any significant stormy weather.

2. THE HURRICANE IN CUBA

The "unrecorded" hurricane reached the southern coast of Cuba as an "unexpected visitor" on the morning of October 12, 1945.

Subsequent paragraphs have been translated from Spanish from a personal letter [1] to the author by Dr. Mario Suárez-Gómez, who was meteorologist-in-charge of the weather station at Sancti-Spíritus (central Cuba) for many years:

> While passing over the Laberinto de las Doce Leguas [an archipelago off the southern coast of Cuba], the cyclone destroyed almost all the mangrove trees at Cayo Bretón; this fact I learned some days after the storm hit when I talked to some fishermen who came from there.
>
> The center of the storm moved over Las Villas Province just east of Tunas de Zaza, near a place called Las Coloradas, where it also destroyed all the mangrove trees and there the sea waters advanced some distance ashore. It then moved to the vicinity of the Jatibonico sugar-mill where a lull was reported for about 5 minutes, and thereafter crossed over Mayajigua where a calm was reported for about the same period. The storm emerged at the Bahamas Channel, west of the Punta Alegre sugar-mill, and sea waters receded at that place. It is a pity that I do not have now the atmospheric pressure readings at the different places where observations were taken. However, I can tell you that the minimum value was recorded at Jatibonico, where the storm was violently felt, and several tanks of the sugar-mill were destroyed and some railroad cars were derailed by the wind force.
>
> Along the path south of Sierra de Jatibonico [rather low mountains in central Cuba], and about 20 km. width, palm trees to the right of the center's path fell down toward the north, while those to the left did so toward the south. The eastern sector of the storm was more severe than the western one.
>
> Winds of 70 to 75 m.p.h. were reported at Tunas de Zaza and telegraph service was discontinued at the station there. The influence of the storm was clearly noticed in Sancti-Spíritus where winds reached 55 m.p.h. and the barographic curve was typical of a tropical cyclone. The University Observatory at Santa Clara also noticed the existence of the disturbance, because Dr. Anido [Director]—who paid a visit to me a few days after the storm hit—told me that the fractocumulus low current at Santa Clara was observed to have been very rapid and low.
>
> Based upon the observations received, it can be stated that the center of the storm moved ashore about 7 a.m. (EST) on the 12th, and emerged on the northern coast about 11.30 a.m.

[1] Letter dated in Boiling Springs, N.C., on June 28, 1965.

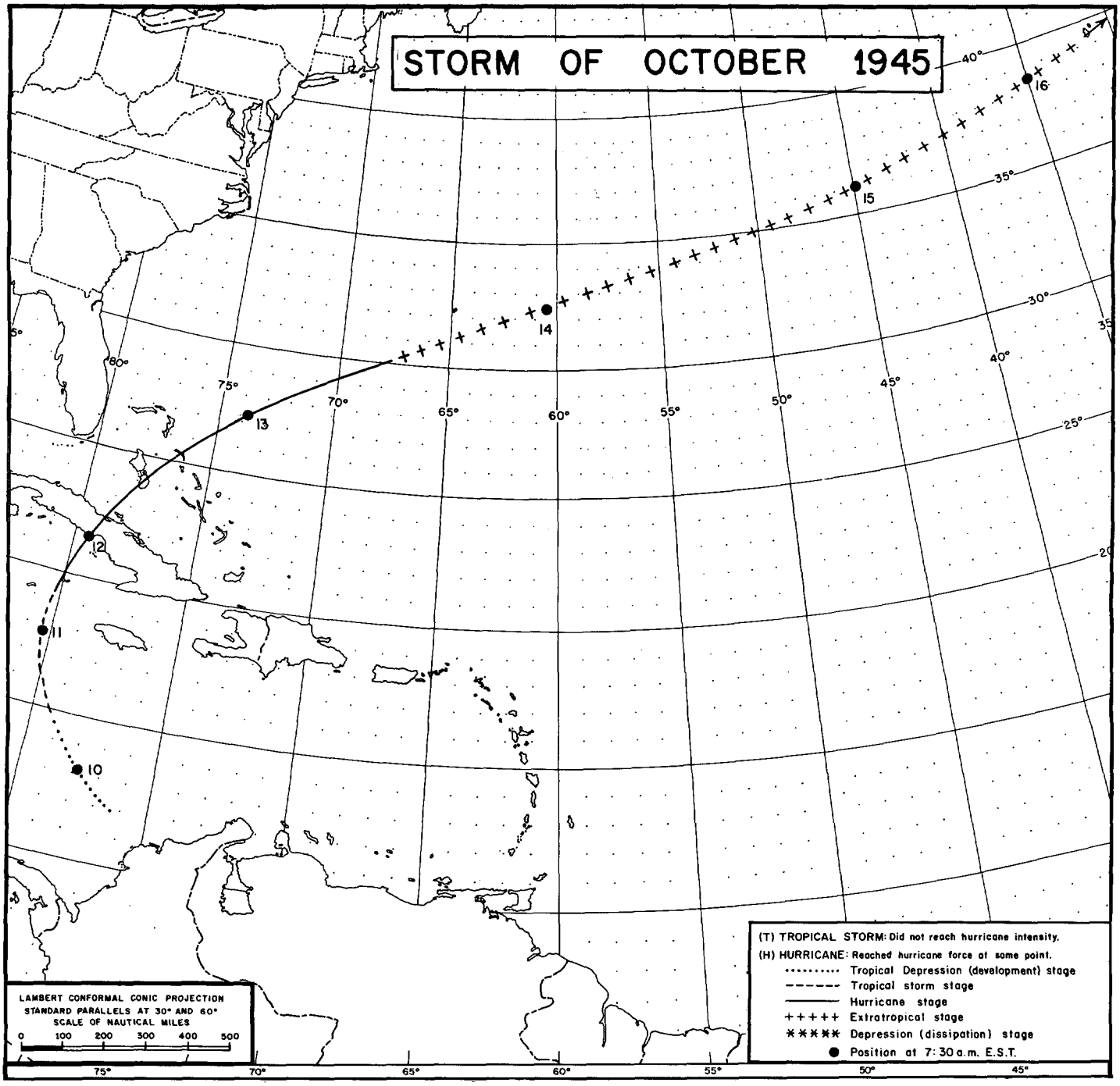

FIGURE 1.—Version of the track of the "unrecorded" hurricane of October 1945.

Figure 3 shows a diagram of the storm's passage over Cuba, (courtesy of Dr. Suárez-Gómez) and according to this graph, the belt affected by winds over 100 m.p.h. was extremely narrow, and the area affected by winds over 50 m.p.h. was only about 40–50 mi. across.

The following extracted notes have been translated from issues of Cuban newspapers:

El Crisol (Havana, Cuba), October 13, 1945:

Four persons died and 200 were injured in the furious storm which struck Jatibonico and Sancti-Spíritus. Damages are estimated at $2 million.

Strong winds affected Sancti-Spíritus and the outskirts of Tunas de Zaza, Guasimal, Zaza del Medio, and Taguasco from 9 to 11 a.m. (yesterday), the most affected being Guasimal.

Martí Theatre was one of the buildings demolished by the wind force at Jatibonico.

Also in the same newspaper and same issue, one can read what presumably is the only advisory released on this storm by a meteorological service.

National Observatory [Cuban Weather Service] October 12, 1945, 11 a.m. A small tropical storm, a disturbance somewhat greater in size than a tornado or waterspout, hit the zone of Tunas de Zaza with pressure reading of 750 mm. [1000 mb.], strong north-

easterly winds, and intermittent showers at 7.30 a.m. this morning. The disturbance is moving northward; it is affecting places near its track and it is passing rapidly toward the northern coast.

El País (Havana, Cuba) evening issue, October 13, 1945:

Mayajigua is without communications. A severe storm struck this town and its outskirts yesterday morning. Several buildings were seriously damaged.

Zaza del Medio. Between 8.30 and 11 a.m. (yesterday) a storm passed over this town, and caused heavy damage to houses and tobacco-houses [flimsy constructions where tobacco is processed].

Guayos. A tropical storm accompanied by torrential rain and strong northeasterly winds in gusts, affected this town in the morning hours yesterday; heavy damage was reported.

Diario de la Marina, (Havana, Cuba), October 13, 1945:

Many vessels have been torn away from their mooring at Tunas de Zaza because of the spout.

3. THE STORM IN THE BAHAMAS

Good evidence of the storm has also been found in the Bahama Islands.

According to press reports, the barometer read a minimum of 29.68 in. [about 1005 mb.] at Nassau, New Providence, where 40–50 m.p.h. winds were felt. The *Nassau Guardian* also included the following information in the October 13, 1945 issue: "A number of homes, particularly in the eastern portion of the island [of New Providence] were without electrical power from the early part of the [previous] night."

Reliable observations which were taken at Oakes Field Airport (about 1.5 mi. southwest from downtown Nassau) are shown on table 1. Three-hourly data are presented from October 12 at 7 a.m. (EST) to October 13 at 1 p.m. However, hourly observations have been included from 4 p.m. on the 12th through 4 a.m. on the 13th in order to allow a thorough comprehension of the meteorological parameter changes.

Regarding Eleuthera, the *Nassau Guardian* published the following account on October 13:

Storm damages small vessels. Takes one life at Eleuthera. Harbour Island experiences winds over 70 m.p.h.

Harbour Island [Eleuthera], where a number of small boats are destroyed, reports that there was a wind force last night of between 70 and 90 m.p.h. No damage to houses was reported and crops also escaped.

Winds of an estimated gale force were reported to have raged over the whole length of Eleuthera, sending two vessels ashore and tearing others from their moorings.

It is understood that Governor's Harbour [Eleuthera] has been hard hit. It is also understood that Government property as well as a number of privately-owned buildings have been very badly damaged, and that telephone lines are down and roads throughout the island are blocked.

The same paper includes a message which said:

Official Report: The following message was received this morning [October 13] by F. N. Ashley, Chief Out Island Commissioner:

A severe north to northwest storm passed over the whole length of Eleuthera between 11.30 p.m. and 2. a.m. [October 12–13]. The wind was estimated at gale force and was accompanied by rain. Vessels were blown from their mooring. The M.V. *Comet* is ashore at Rock Sound. M.V. *Dairy Maid* is aground at Governor's Harbour.

Some additional information on the storm's passage over Eleuthera can be found in the 1945 Annual Report submitted to the Out Island Commissioner of the Bahamas by his colleague at Governor's Harbour. The following data were extracted from that source:

Meteorological. October 1945. Barometer readings. Average: 29.90 inches. Highest reading: 30.20 inches, Lowest reading: 29.00 inches.

From 11. p.m. on the 12th to 3 a.m. on the 13th of October a severe hurricane passed over the District.

Public buildings have been renovated and public property damaged by the hurricane is under repairs.

Although it is not indicated in the report, it is obvious that the lowest barometer reading of 29.00 in. or 982 mb. (probably uncorrected) must have been recorded at Governor's Harbour during the hurricane's passage. There can be no possible confusion in this case, since no other hurricane directly affected the settlement in the whole year of 1945.

Going back to press reports, we read this announcement in the October 30, 1945 issue of the *Nassau Guardian:*

Urgent appeal for victims of hurricane. The Bahamas Red Cross and the IODE Hurricane Relief make an urgent appeal for gifts of cooking pots and pans, plates, cups and saucers, spoons, bedding, and household effects of every description for the 29 homeless families at Governor's Harbour, who were victims of the recent storm.

Also in the same paper and same issue, there is a note which refers to a meeting held in Nassau by the so-called Hurricane Relief Committee. The following paragraphs were extracted from there:

Mrs. Brown went to Governor's Harbour with Mrs. Caulfield and Mrs. Ashley [all members of the Committee] after the severe storm which swept Cupid's Cay [off Governor's Harbour] a fortnight ago.

Mrs. Brown read a report on the visit to Governor's Harbour and told of the parcels of clothing materials, milk, soup, etc., distributed and sent off since her return.

The Bishop [of Nassau], who happened to be at Eleuthera at the time of the storm, gave a vivid account of the desolation on the Cay [Cupid's Cay].

The island of Andros also suffered from the storm, but apparently to a lesser extent than Eleuthera. The *Nassau Guardian* published this note on October 15, 1945:

High winds at Mangrove Cay. Reports have been received from Mangrove Cay, Andros, that on the night of the 12th strong winds at a rate of 45 m.p.h., swept the settlement. As yet the extent of damages, if any, have not been revealed. Apparently the disturbance traveled from Mangrove Cay to the extreme north of the Exumas, and then to Eleuthera.

The Commissioner of Mangrove Cay, Andros, gave the following account in his Annual Report for 1945:

On 14th-15th night of September a storm with full hurricane force at the center came near the District, passing slightly to the south. Again on October 12th, a cyclonic storm with winds up to 50 miles [per hour] struck the District! It was during these storms that the barometer fell to 29.73 inches [about 1007 mb., uncorrected].

The storm on October 12th struck the District with terrific force in sections. Apparently, it was more like a cyclonic storm. This brought greater destruction to farms and coconut trees.

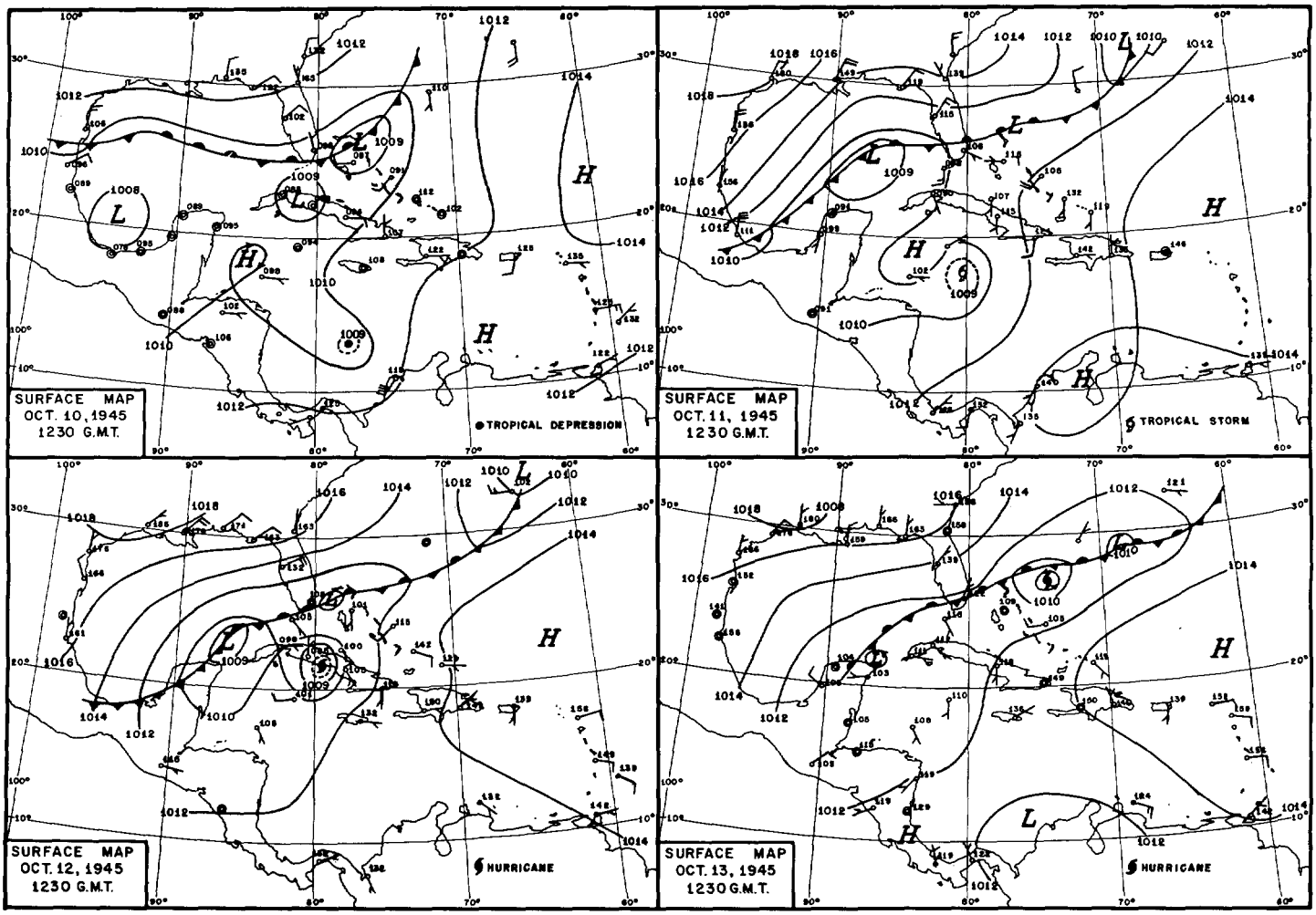

FIGURE 2.—Surface maps from October 10 to 13, 1945 (1230 GMT) as re-analyzed by the author of this paper.

TABLE 1.—*Oakes Field Airport observations (Nassau, Bahamas), October 12–13, 1945*

Time (EST)	Wind (m.p.h.)	Pressure (mb.)	Temp. (° F.)	Clouds		Remarks
				Total amount (tenths)	Types	
7 a.m.	S/05	1010.6	81	9	Cu, Ac, Ci	
10 a.m.	SW/10	1012.5	84	9	Cb, Ac, As, Ci	
1 p.m.	SSE/10	1010.1	85	9	Cb, Ac, As, Ci	
4 p.m.	E/05	1008.7	81	10	Cu, Cb, Ac, As	Rain 4:02–4:05 p.m.
5 p.m.	E/08		78	10	Cb, Fc, Ac	Rain 5:03–5:08 p.m.
6 p.m.	E/10		78	10	Cb, Fc, Ac	Mod. rain began 5:50 p.m.
7 p.m.	ENE/10	1007.3	78	10	Ns	Continuous rain.
8 p.m.	ENE/20		75	10	Ns	Continuous rain.
9 p.m.	NNE/25		73	10	Ns	Continuous rain.
10 p.m.	N/20	1006.4	73	10	Ns	Cont. rain. Few ocnl. gusts 35–40 m.p.h. between 9 and 10 p.m.
11 p.m.	NNW/18		73	10	Cu, Ns	Rain. Gusts 28 m.p.h. Dist. < SE and N.
Midn't.	NNW/14		74	10	Cu, As	Rain ceased 11:15 p.m. Shower 11:25–35.
1 a.m.	NNW/09	1008.9	77	10	Cu, Ac, As	
2 a.m.	NNW/06		77	7	Cu	Showers. 1:05–1:07; 1:24–1:25; 1:42–2:03 a.m. Dist. < SE.
3 a.m.	NW/03		76	5	Cu, Ac, As	
4 a.m.	Calm	1009.4	74	4	Cu, Ac, As	Smoke, haze.
7 a.m.	WSW/02	1011.1	75	8	Cu, Ac, As, Cs	
10 a.m.	W/10	1012.3	81	9	Cu, Ac, As, Ci, Cs	
1 p.m.	NNW/10	1012.2	73	10	Fs, As	A few showers.

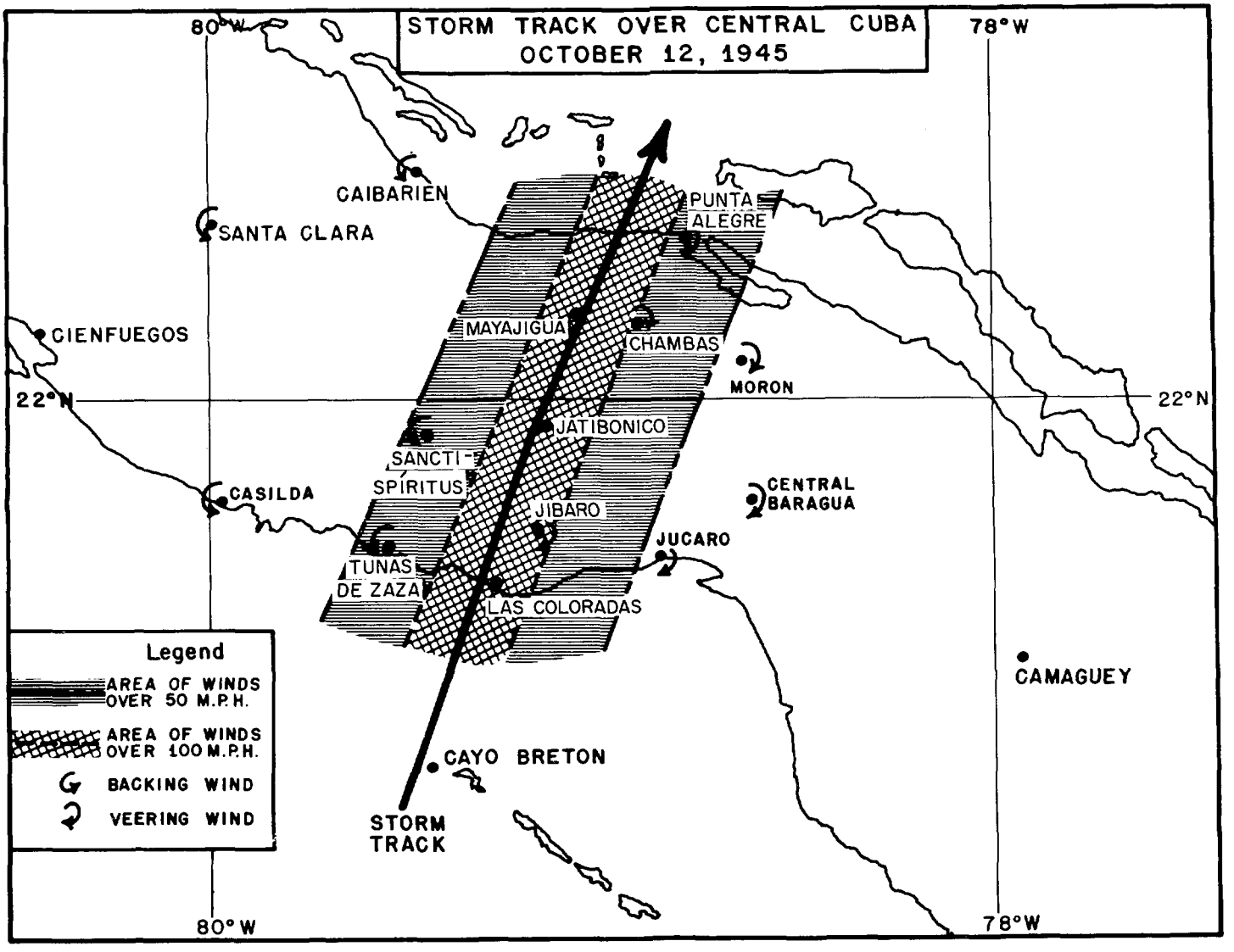

FIGURE 3.—Path of the hurricane of October 12, 1945 over central Cuba. This graph is a reproduction of the original one kindly presented to the author by Dr. Mario Suárez-Gómez, whose description of the storm is included in the text.

Thousands of coconut trees which had not recovered from the shocks of the storm of September were twisted, uprooted, snapped and dashed to the ground.

Three vessels were known to have been caught by the storm while they were sailing in waters of the Bahamas; two cases have been referred to by the Commissioner of Mangrove Cay in his report, while the third one was published by the *Nassau Guardian*.

On this matter, the Commissioner wrote:

Sloop *Blameig* was caught by the storm while on her way from Nassau [to Mangrove Cay, Andros]. She was forced to put in at Drigg's Hill where all the passengers and crew disembarked. The sloop was wrecked and its cargo of foodstuffs, kerosene and building materials was badly damaged or lost. Sloop *Kleener Naomi* on her way from Nassau [to Andros] was caught in the storm off Cargill's and had to jettison a portion of the cargo to save the passengers, crew and vessel.

Finally, this is what appeared in the *Nassau Guardian* in the October 15, 1945 issue:

M.V. *Alice Mabel* suffers damage in sudden storm (extracted). The M.V. *Alice Mabel* on her way to Exuma was forced to turn back when on Friday night [October 12], she encountered winds of a high velocity. In an attempt to evade the storm, the vessel's engines were run at maximum speed, and, unfortunately, resulted in a burnt bearing, but no other damage was suffered. The *Alice Mabel* is now in Norman's Cay [Exumas] with both her crew and freight intact.

4. DISCUSSION

Strong evidence of a tropical depression—or perhaps a tropical storm—has been found over the southwestern Caribbean, north of Colombia and Panama, as early as October 10, 1945. However, it is not believed that the disturbance reached hurricane intensity immediately.

This is likely to have occurred during October 11, while the storm was approaching the Cayman Islands and just in that vicinity. It is also possible that the small hurricane itself was the product of the formation of a convective-scale vortex some distance to the north of the synoptic-scale disturbance. La Seur [4] has pointed out an example of such cases in the development of Judith, 1959.

The "unrecorded" hurricane of October 1945 was moving fairly rapidly, at an average speed of 16–17 kt., while crossing over central Cuba, and slightly over 20 kt. when emerging from the Bahamas into the Atlantic Ocean.

Estimated winds over 100 m.p.h. as the storm moved across Cuba are in excellent agreement with those expected from the data available, if a $vr^{\frac{1}{2}}$=constant vortex with an inner radius of 4 mi. or less is accepted. Also under this reasoning, it is very likely that the minimum sea level pressure was around 975–980 mb. in accordance with Fletcher's [5] empirical formula. Therefore, hurricane force winds can be easily supported.

Although wind estimates in the vicinity of the path over the Bahamas have been found to be somewhat contradictory, most of the data available are also in favor of the existence of winds in excess of 74 m.p.h. Unfortunately, it has not been possible to pinpoint an accurate track of the center over the Islands because of lack of proper information. However, unconfirmed calm reports have been stated by different persons who formerly lived in small villages on the southern tip of Andros and indications are that the center must have passed very close to Governor's Harbour (Eleuthera) where the minimum sea level pressure (982 mb., probably uncorrected) was recorded and where the heaviest damages were suffered.

An upper-air study of this case was initially considered, but data were not sufficient to make a serious attempt. 500-mb. maps of the Historical Weather Map series have been examined for the period concerned, and a fairly good agreement of the track with the prevailing pattern of circulation was detected. Some slight warming was also noticed in the 500-mb. radiosonde reports from southern Florida and Cuba on October 12, 1945.

5. CONCLUSION

It is believed that the case for a small-sized hurricane, which had not been entered in the general records before, has been well documented and established by this paper, and therefore this storm should be added to the record and list of hurricanes for the year 1945.[2]

ACKNOWLEDGMENTS

Sincere thanks are due Dr. Mario Suárez-Gómez, former meteorologist-in-charge at Sancti-Spíritus (central Cuba) for his important contributions to this paper. The author also wishes to acknowledge the help given to him by a number of officers of the Government of the Bahamas, and by a few anonymous persons during the process of gathering the data used in support of this work.

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[2] Editor's note: This storm will be included in future revisions of the official tabulations of hurricanes and hurricane statistics.